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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,320	12/04/2001	Tracy J. Kimbrel	00280686AA	9757

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EXAMINER

BOUTAH, ALINA A

ART UNIT	PAPER NUMBER
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2143

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,320

Applicant(s)

KIMBREL ET AL.

Examiner

Alina N Boutah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of claims 1-14 in the reply filed on January 19, 2004 is acknowledged. The traversal is on the ground(s) that the "resources" are the "servers" in the sever farm. This is found persuasive therefore the requirement is withdrawn.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

The drawings are objected to because the reference numbers in figure 5 do not match those described in the specification. For example, the function blocks in the specification are labeled as 51-56, whereas the drawing is labeled as 501-506. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

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amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear to what Applicant is intended by “input time-customer matrix” and “output time-customer matrix.” The specification discloses obtaining demands for resources and computing new allocations for the resources, but does not explicitly define input and output “time-customer matrix” for the resources.

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Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear as to what Applicant is intended by "customer class." Lines 6-9 of the claim discloses "dividing time into intervals of fixed length based on the assumption that each site's demand is uniformly spread throughout each such interval." The detailed specification discloses dividing into intervals, but does not disclose the interval being "fixed length" that is based on "the assumption that each site's demand is uniformly spread throughout each such interval."

The specification also fails to disclose "providing time to scrub the old site... to reboot the server and to load new site in which the server has been allocated..." in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It would require undue experimentation for one of ordinary skill in the art at the time the invention was made to determine the details.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 8 recites the limitations “the state sets” “the benefit function” and “the problem to the analogous maximum-close network flow problem.” There are insufficient antecedent basis for these limitations in the claim.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitations “the server allocation problem” in page 16, line 5, “the assumption” in lines 6-7, “each site’s demand” in line 7, “the old site” in line 12, and “the service provider” in lines 17-18. There are insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,216,593 issued to Dietrich et al. (hereinafter referred to as Dietrich).

Regarding claim 1, Dietrich teaches a method of resource allocation to yield a benefit comprising the steps of:

generating an input time-customer matrix of demands for resources where a benefit function is known in advance (figure 2 steps 30-34; col. 2, lines 17-34); and

producing from the input matrix an output time-customer matrix of allocations of resources to customers to realize a benefit (figure 4; col. 2, lines 17-34).

Regarding claim 2, Dietrich teaches the method of resource allocation as recited in claim 1, wherein resource allocation is done to maximize a benefit (abstract; col. 2, lines 17-34).

Regarding claim 3, Dietrich teaches the method of resource allocation as recited in claim 1, wherein the benefit is a tangible benefit (col. 2, lines 38-58).

Regarding claim 4, Dietrich teaches the method of resource allocation as recited in claim 3, wherein the tangible benefit is a profit and resource allocation is done to maximize the profit (col. 2, lines 38-58).

Regarding claim 5, Dietrich teaches the method of resource allocation as recited in claim 1, wherein the benefit is an intangible benefit (col. 2, lines 38-58).

Regarding claim 6, Dietrich teaches the method of resource allocation as recited in claim 5, wherein the intangible benefit is customer satisfaction and resource allocation is done to maximize customer satisfaction (col. 2, lines 38-58).

Regarding claim 7, Dietrich teaches the method of resource allocation as recited in claim 1, wherein the resource is computer cycles and resource allocation is done to more efficiently solve computationally intensive problems (col. 4, lines 56-69).

Allowable Subject Matter

Claim 8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The prior art of record fail to disclose "reducing the problem to the analogous maximum-cost network flow problem by constructing a directed network with s "rails", one per site, each rail being a chain of edges each representing one time step, flow along a rail representing an allocation of resources to a corresponding site,

constructing a set of "free pool" nodes, one per time step, through which flow will pass when resources are reallocated from one site to another,

for a demand matrix $d_{s,i,t}$, $1 \leq i \leq s$, $1 \leq t \leq T$, constructing nodes $n_{s,i,t}$, $1 \leq i \leq s$, $0 \leq t \leq T$, along with nodes $f_{s,t}$, $1 \leq t \leq T$, and for each site s and each time step t , constructing three edges from $n_{s,i,t-1}$ to $n_{s,i,t}$, wherein the first edge has capacity $[d_{s,i,t}]$ and cost $r_{s,i,t}$, the second edge has capacity one and cost $r_{s,i,t} \cdot (d_{s,i,t-1} - [d_{s,i,t}])$, and the third

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edge has infinite capacity and cost zero, flow along the first edge representing a benefit of allocating resources s to site i during time step t , up to the integer part of $d_{sub,i,t}$, flow along the second edge representing a remaining benefit, $r_{sub,i,t}$, times a fractional part of $d_{sub,i,t}$ to be collected by one more resource, and flow along the third edge representing that extra resources can remain allocated to s but do not collect any benefit,

constructing edges of infinite capacity and cost zero from $n_{sub,i,t-1}$ to $f_{sub,t}$ and from $f_{sub,i}$ to $n_{sub,i,t}$, for each $1 \leq t \leq T$ and each $1 \leq i \leq s$ which represent a movement of servers from one site to another, constructing a source into which a flow k is injected, with infinite capacity zero cost edges to each $n_{sub,i,0}$, and a sink with infinite capacity zero cost edges from each $n_{sub,i,T}$; and

solving the maximum-cost network flow problem and allocating resources.”

Dependent claims 9-14 are allowed because they depend on allowed claim 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alina N. Boutah whose telephone number is 571-272-3908. The examiner can normally be reached on Monday-Friday (9:00 am - 5:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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